IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application.

(Currently Amended) A scanning probe microscope tip coated with a layer of
chemically-synthesized nanoparticles permanently adhered affixed to said tip, each of said
nanoparticles comprising a length and width, wherein said length differs from said width by less
than approximately 15%,

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle[[.]],

wherein said tip is coated with an adhesion layer,

wherein said adhesion layer is between said tip and said nanoparticles, and wherein said nanoparticles are generally spherical.

- 2. (Original) The tip of claim 1, wherein said scanning probe microscope tip is one of an atomic force microscope tip, a near-field scanning optical microscope tip, and a scanning tunneling microscope tip.
- 3. (Original) The tip of claim 1, wherein said nanoparticles comprise at least one of an amorphous, crystalline, ferromagnetic, paramagnetic, superparamagnetic, antiferromagnetic, ferrimagnetic, magneto optic, ferroelectric, piezoelectric, superconducting, semiconducting, magnetically-doped semiconducting, insulating, fluorescent, and chemically catalytic nanoparticles.

- 4. (Previously Presented) The tip of claim 1, wherein said outer coating layer comprises an organic layer; wherein said nanoparticles having a diameter ranging from 2 nm to 20 nm, and said organic layer having a thickness ranging from 0.5 nm to 5 nm.
- 5. (Previously Presented) The tip of claim 1, wherein said outer coating layer comprises an organic coat comprising a head-group and a tail-group;

wherein said head group comprises one of an amine, carboxylic acid, isocyanide, nitrile, phosphene, phosphonic acid, sulfonic acid, thiol, and trichlorosilane; and

wherein said tail-group comprises one of an alkyl chain, aryl chain, fluorocarbon, siloxane, fluorophore, DNA, carbohydrate, and protein.

- 6. (Currently Amended) The tip of claim 1, wherein said tip is coated with an adhesion layer emprising of comprises one of n-(2-aminoethyl) 3-aminopropyl-trimethoxysilane, polyethylineimine, polymethylmethacrylate, epoxy, cyanoacrylate adhesive, and an α,ω alkyl chain.
- 7. (Original) The tip of claim 1, wherein said layer of chemically-synthesized nanoparticles is at least one nanoparticle thick.
- 8. (Original) The tip of claim 1, wherein said layer of chemically-synthesized nanoparticles is a single layer of nanoparticles thick and covers only the apex of said tip.

- 9. (Original) The tip of claim 1, wherein said layer of chemically-synthesized nanoparticles comprises a single nanoparticle affixed to an apex of said tip.
- 10. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

coating said scanning probe microscope tip with an adhesion promoter;

dipping said scanning probe microscope tip into a liquid solution of nanoparticles, each of said nanoparticles comprising a length and a width; and

withdrawing said scanning probe microscope tip from said solution; said length differs from said width by less than approximately 15%,

wherein said step of dipping causes said nanoparticles to permanently adhere affixed to said scanning probe microscope tip,

wherein said scanning probe microscope tip comprises a tip apex, and wherein said each of said nanoparticles comprises an outer coating layer[[.]], and wherein said nanoparticles are generally spherical.

- 11. (Original) The method of claim 10, wherein said step of dipping said scanning probe microscope tip into a solution of nanoparticles comprises dipping said scanning probe microscope tip into a monolayer of nanoparticles floating on a liquid subphase.
- 12. (Original) The method of claim 10, wherein said step of dipping said scanning probe

 10/039,635

 4

microscope tip into a solution of nanoparticles comprises inking an elastomer with a plurality of nanoparticles; and dipping said scanning probe microscope tip into said elastomer.

- 13. (Original) The method of claim 10, further comprising washing off said solution after said step of withdrawing said scanning probe microscope tip from said solution, wherein said solution is a nonvolatile solution.
- 14. (Original) The method of claim 10, further comprising applying an electric potential to said scanning probe microscope tip prior to said step of dipping said scanning probe microscope tip into a solution of nanoparticles.
- 15. (Original) The method of claim 14, wherein said solution further comprises an electrochemical solution, a supporting electrolyte, and an electrode held at a neutral potential.
- 16. (Original) The method of claim 10, wherein said nanoparticles form a layer around said scanning probe microscope tip, wherein said layer is one nanoparticle thick.
- 17. (Previously Presented) The method of claim 10, wherein said nanoparticles form a layer around said scanning probe microscope tip, wherein said layer comprises a single layer of nanoparticles and covers only said tip apex.
- 18. (Original) The method of claim 10, wherein only a single nanoparticle is affixed to said10/039,6355

tip apex.

- 19. (Canceled).
- 20. (Original) The method of claim 10, wherein said step of dipping said scanning probe microscope tip into a solution of nanoparticles comprises submerging said tip into said liquid solution.
- 21. (Original) The method of claim 10, wherein said nanoparticles form a layer around said tip, said method further comprising exposing said layer of nanoparticles to one of a laser light, a beam of electrons, ultraviolet light, and heat.
- 22. (Original) The method of claim 10, wherein said nanoparticles form a layer around said tip, said method further comprising transforming said layer of nanoparticles into an electrically continuous film by annealing.
- 23. (Original) The method of claim 10, wherein said nanoparticles form a layer around said tip, said method further comprising orienting uniformly the magnetic axis of said nanoparticles by annealing in the presence of a magnetic field.
- 24. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

removing said sacrificial layer.

coating said scanning probe microscope tip, with the exception of an apex of said tip, with a sacrificial adhesion layer;

depositing generally spherical nanoparticles over said tip, wherein said nanoparticles are permanently adhered affixed to said tip, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%; and

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle.

25. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

coating said scanning probe microscope tip with an adhesion promoter;

dipping said scanning probe microscope tip into a monolayer of generally spherical nanoparticles floating on a liquid subphase, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%; and

withdrawing said scanning probe microscope tip from said liquid subphase;

wherein said step of dipping causes said nanoparticles to permanently adhere affix to said scanning probe microscope tip,

wherein said scanning probe microscope tip comprises a tip apex, and
wherein said each of said nanoparticles comprises an outer coating layer encapsulating
each nanoparticle.

said scanning probe microscope tip.

(Currently Amended) A method of forming a scanning probe microscope tip, said method 26. comprising:

inking an elastomer with a plurality of generally spherical nanoparticles, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%;

coating said scanning probe microscope tip with an adhesion promoter; dipping said scanning probe microscope tip into said elastomer; and withdrawing said scanning probe microscope tip from said elastomer; wherein said step of dipping causes said nanoparticles to permanently adhere affix to

wherein said scanning probe microscope tip comprises a tip apex, and wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle.

27. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

coating said scanning probe microscope tip with an adhesion promoter;

dipping said scanning probe microscope tip into a liquid solution, wherein said liquid solution is nonvolatile and further comprises a plurality of generally spherical nanoparticles dispersed therein, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%;

withdrawing said scanning probe microscope tip from said liquid solution; and

wherein said step of dipping causes said nanoparticles to permanently adhere affix to said scanning probe microscope tip,

wherein said scanning probe microscope tip comprises a tip apex, and
wherein said each of said nanoparticles comprises an outer coating layer encapsulating
each nanoparticle.

28. (Currently Amended) A method of forming a scanning probe microscope tip, said method comprising:

coating said scanning probe microscope tip with an adhesion promoter;

dipping said scanning probe microscope tip into an electrochemical solution, wherein said electrochemical solution comprises generally spherical nanoparticles, a solvent, and an electrode held at a neutral potential, each of said nanoparticles comprising a length and width, said length differs from said width by less than approximately 15%:

applying an electric potential to said scanning probe microscope tip; and withdrawing said scanning probe microscope tip from said electrochemical solution; wherein said step of dipping causes said nanoparticles to attach stick affix to said scanning probe microscope tip,

wherein said scanning probe microscope tip comprises a tip apex, and
wherein said each of said nanoparticles comprises an outer coating layer encapsulating
each nanoparticle.

29.	(Original) The method of claim 28, wherein said electrochemical solution further
compi	rises a supporting electrolyte and a reference electrode.

- 30. (Canceled).
- (Previously Presented) The tip of claim 1, wherein said nanoparticles comprise generally 31. spherical cobalt nanoparticles.
- 32. (Previously Presented) The tip of claim 1, wherein said outer coating layer comprises a layer of oleic acid.
- 33. (Canceled).
- 34. (Canceled).
- 35. (Canceled).
- 36. (Canceled).
- 37. (Currently Amended) A scanning probe microscope tip coated with a layer of chemically-synthesized generally spherical nanoparticles stuck affixed to said tip, wherein said 10/039,635 10

nanoparticles are shaped in a configuration other than an elongated tube configuration, and wherein each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticles.

In a configuration other than an elongated tube configuration, and wherein each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticles.

38. (New) A scanning probe microscope tip coated with a layer of chemically-synthesized nanoparticles affixed to said tip, each of said nanoparticles comprising a length and width, wherein said length differs from said width by less than approximately 15%,

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle,

wherein said outer coating layer comprises an organic layer,

wherein said nanoparticles having a diameter ranging from 2 nm to 20 nm, and said organic layer having a thickness ranging from 0.5 nm to 5 nm,

wherein said outer coating layer comprises an organic coat comprising a head-group and a tail-group;

wherein said head group comprises one of an amine, carboxylic acid, isocyanide, nitrile, phosphene, phosphonic acid, sulfonic acid, thiol, and trichlorosilane;

wherein said tail-group comprises one of an alkyl chain, aryl chain, fluorocarbon, siloxane, fluorophore, DNA, carbohydrate, and protein,

wherein said tip is coated with an adhesion layer,

wherein said adhesion layer is between said tip and said nanoparticles, wherein said nanoparticles are generally spherical,

wherein said adhesion layer comprises one of n-(2-aminoethyl)

3-aminopropyl-trimethoxysilane, polyethylineimine, polymethylmethacrylate, epoxy, cyanoacrylate adhesive, and an α,ω alkyl chain,

wherein said layer of chemically-synthesized nanoparticles is a single layer of nanoparticles thick and covers only the apex of said tip, and

wherein said layer of chemically-synthesized nanoparticles is at least one nanoparticle thick.

- 39. (New) The tip of claim 38, wherein said scanning probe microscope tip is one of an atomic force microscope tip, a near-field scanning optical microscope tip, and a scanning tunneling microscope tip.
- 40. (New) The tip of claim 38, wherein said nanoparticles comprise at least one of an amorphous, crystalline, ferromagnetic, paramagnetic, superparamagnetic, antiferromagnetic, ferrimagnetic, magneto optic, ferroelectric, piezoelectric, superconducting, semiconducting, magnetically-doped semiconducting, insulating, fluorescent, and chemically catalytic nanoparticles.
- 41. (New) The tip of claim 38, wherein said layer of chemically-synthesized nanoparticles comprises a single nanoparticle affixed to an apex of said tip.
- 42. (New) A scanning probe microscope tip coated with a layer of chemically-synthesized 10/039,635

generally spherical nanoparticles affixed to said tip, each of said nanoparticles comprising a length and width, wherein said length differs from said width by less than approximately 15%,

wherein said each of said nanoparticles comprises an outer coating layer encapsulating each nanoparticle,

wherein said tip is coated with an adhesion layer,

wherein said adhesion layer is between said tip and said nanoparticles,

wherein said adhesion layer comprises one of n-(2-aminoethyl)

3-aminopropyl-trimethoxysilane, polyethylineimine, polymethylmethacrylate, epoxy, cyanoacrylate adhesive, and an α , ω alkyl chain, and

wherein said layer of chemically-synthesized nanoparticles is at least one nanoparticle thick.